

LCQ21: Renewable energy

Following is a question by the Hon Chan Hak-kan and a written reply by the Secretary for the Environment, Mr Wong Kam-sing, in the Legislative Council today (October 23):

Question:

Feed-in Tariff (FiT) and Renewable Energy Certificates (RECs) are two new initiatives for promoting the development of distributed renewable energy (RE). FiT encourages the private sector to invest in the construction of RE systems through the power companies' purchase of the power generated from RE at a rate higher than the normal electricity tariff rate. On the other hand, the power companies sell RECs for every unit of electricity generated from RE. Electricity consumers can support the development of RE by purchasing RECs. In this connection, will the Government inform this Council:

(1) whether it knows, since the introduction of RECs, (i) the number of RECs and (ii) the amount of electricity generated from RE sold respective by the two power companies;

(2) whether it knows, in respect of FiT since it was launched:

(a) the respective numbers of applications approved by the two power companies, broken down by the generating capacity of the systems (i.e. (i) equal to or less than 10 kilowatts (kW), (ii) more than 10 kW but not exceeding 200 kW, and (iii) more than 200 kW but not exceeding 1 megawatt);
(b) the respective numbers of units of electricity purchased by the two power companies;
(c) the respective average times taken by the two power companies for processing applications which were approved; and
(d) the respective percentages of customers of the two power companies who successfully installed electricity generation systems, broken down by the category of customers (e.g. residential, commercial and school);

(3) as some members of the public have relayed to me that their FiT applications have been approved with a lower generating capacity due to issues such as the proposed electricity generating capacity has exceeded the capacity of the relevant power grids (including electric substations and power cables), whether the Government knows the number of such cases and the follow-up actions taken by the two power companies;

(4) given that the Government has introduced Solar Harvest to provide subsidies and assistance to schools (except government and profit-making schools) and non-governmental welfare organisations, which are receiving recurrent subventions from the Social Welfare Department, for installing small-scale solar photovoltaic systems on their premises, of the to-date number of schools and organisations which have been provided with subsidies and assistance for installing such systems;

(5) whether it has plans to review the FiT rates; if so, of the details and timetable;

(6) of the measures (e.g. providing subsidies to members of the relevant recycling industry) in place to dispose of waste solar panels, so as to prevent such waste from polluting the environment; and

(7) of the current percentage of power generated by solar energy in the total electricity supply in Hong Kong, and whether it will set a target for that percentage; if so, of the details; if not, the reasons for that?

Reply:

President,

Reply to the question raised by the Hon Chan Hak-kan is as follows:

(1) Renewable Energy (RE) Certificates were introduced in January 2019. As at the end of September 2019, CLP Power Hong Kong Limited and Castle Peak Power Company Limited (collectively CLP) and the Hongkong Electric Company Limited (HKE) had sold 143 and 113 RE Certificates respectively, representing over 2.5 million and about 900 000 units of electricity respectively.

(2) The Feed-in Tariff (FiT) Schemes of CLP and HKE were implemented on October 1, 2018 and January 1, 2019 respectively. As at the end of September 2019:

(a) The numbers of applications approved by the two power companies respectively, broken down by generating capacity, are as follows:

System type	Number of approved applications	
	CLP	HKE
Systems with generating capacity of 10 kW or below	3 913	57
Systems with generating capacity of above 10 kW but below or equal to 200 kW	595	16
Systems with generating capacity of above 200 kW	5	0 (Note)

Note: HKE has not received applications concerning large systems with generating capacity of above 200 kW so far.

(b) CLP and HKE have purchased through the FiT Schemes about 3.5 million and about 250 000 units of electricity respectively.

(c) The time required to process applications depends on the circumstances of each case. In cases where the applicant includes all necessary documents in the submission, and the project also fulfils relevant technical and safety requirements, CLP and HKE would need on average about three weeks and two weeks respectively to process the application.

(d) The numbers of CLP and HKE customers who have successfully installed generating systems and have started receiving FiT account for 20 per cent and 40 per cent of the applications received by the two power companies respectively. Breakdown of these cases by type of customer is as follows:

Customer Type	Percentage (%)	
	CLP	HKE
Residential Customers	83	52
Commercial and Industrial Customers	8	24
Schools	4	17
Other Customers	5	7

(3) As at the end of September 2019, CLP had received over 5 200 applications. In about 400 of these cases (i.e. around 8 per cent), the generating capacity approved was lower than that applied for. Many of these cases involved locations in relatively remote areas. As for HKE, it has not adjusted the generating capacity of any of the applications received so far.

We understand that, at present, when CLP customers apply for FiT, if the generating capacity applied for exceeds the capacity of the electricity network at the premises concerned, CLP cannot approve the excess capacity because it has to ensure the safety and reliability of the electricity system. To further support the development of RE and facilitate its customers, CLP would, having regard to the customer's application, increase the capacity of the electricity network or undertake reinforcement work. The customer may choose to accept immediately a generating capacity which is lower than that applied for, or to wait till completion of the reinforcement work which would allow connection to the CLP electricity network at the capacity level applied for, and then get connected at that level.

(4) The Electrical and Mechanical Services Department (EMSD) introduced Solar Harvest in March this year to install solar photovoltaic (PV) systems for eligible non-Government and non-profit-making schools, as well as welfare non-Governmental organisations on recurrent subventions from the Social Welfare Department. Response to the scheme has been positive. The first two rounds of applications closed in early April and end of May this year respectively, with over 210 applications received in total. The EMSD is processing the applications and the first batch of systems has begun operation starting from early October this year. The EMSD plans to invite the next round of applications in the first quarter of next year.

(5) FiT rates are adjusted annually having regard to relevant factors (including mainly changes in the costs of installing RE systems), in order to maintain the original objective in setting the FiT rates, which is to shorten the payback period of the systems concerned. In adjusting the FiT rates, we need, on the one hand, to provide sufficient financial incentives for investing in RE and, on the other hand, to balance the impact of FiT on tariffs. We will announce the outcome of the review of the FiT rates at the end of 2019 when we announce the outcome of the 2020 tariff review.

(6) Solar PV panels do not have moving parts, and normally can be used for more than 25 years. Although there is no imminent need to handle or recycle large quantities of solar PV panels in Hong Kong at present, the Government will make reference to international trends and practices, including the technologies for, and experiences in, recycling solar PV panels, and will continue to closely monitor the local usage of solar PV panels, so as to formulate a suitable solution for Hong Kong in a timely manner.

(7) According to the "Hong Kong Energy End-use Data", the amount of RE currently accounts for roughly 0.1 per cent of "electricity" consumption. This includes the solar energy used to heat water, and electricity generated by PV panels, wind and hydro power systems and waste-to-energy facilities. We do not have the breakdowns.

Generally speaking, the generation of RE relies on natural resources, such as solar, wind and hydro power. However, the physical environment of Hong Kong has imposed a relatively large number of constraints on the wide application of such RE. As set out in the Hong Kong's Climate Action Plan 2030+, based on currently mature and commercially available technologies, our estimate is that Hong Kong has a realisable RE potential of about 3 to 4 per cent (as a percentage of Hong Kong's total electricity consumption) arising from wind, solar and waste-to-energy that can be exploited between now and 2030, with solar accounting for about 1 to 1.5 per cent. However, we still face many technical and financial challenges in fully exploiting such RE potential, and there would also be impact on tariffs. Given that we are still at an early stage of development in many aspects, and that there are many uncertainties involved (for example, the local community only has about one year's experience in FiT), it is not yet appropriate to specify a target for RE (including that for solar energy) in the fuel mix for electricity generation at this stage.